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Indian Standard

METHOD FOR GRADING (BY SIZE) OF PHLOGOPITE MICA BLOCKS, THINS AND SPLITTINGS

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July 1979

Indian Standard

METHOD FOR GRADING (BY SIZE) OF PHLOGOPITE MICA BLOCKS, THINS AND SPLITTINGS

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Indian Standard

METHOD FOR GRADING (BY SIZE) OF PHLOGOPITE MICA BLOCKS, THINS AND SPLITTINGS

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 12 January 1979, after the draft finalized by the Mica Sectional Committee had been approved by the Electrotechnical Division Council.

0.2 This Indian Standard deals with size grading of phlogopite mica and does not cover thermal classification, which is covered in IS:9045-1979*.

0.3 The grading scale specified in this standard is similar to that specified in IS:1175-1957†. The designations proposed for grading are based on preferred number of series R20, in accordance with IS:1076-1967‡.

0.4 The commercial forms of phlogopite mica, namely, blocks, thins and splittings, are cut or trimmed (fully or partially, depending on the purpose of use) with knife or sickle before sale.

0.5 While preparing this standard, considerable assistance has been derived from ISO 444-1965 'Phlogopite mica blocks, thins and splittings — method for grading by size', issued by the International Organization for Standardization.

0.6 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960§. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard describes a standard method for grading phlogopite mica blocks, thins and splittings, according to size, and includes trimming requirements and definitions of relevant terms used in the trade.

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*Thermal classification of phlogopite mica splittings.

†Methods for grading and classification of muscovite mica blocks, thins and films.

‡Preferred numbers.

§Rules for rounding off numerical values (*revised*).

2. TERMINOLOGY

2.0 For the purpose of this standard, the following definition and those given in IS:1174-1957* shall apply.

2.1 'V' Cuts or Figure Cuts — Edge cuts converging towards the central area of the mica piece.

3. GRADING

3.1 Principle — The standard grading method for phlogopite mica (blocks, thins and splittings) is based on the maximum usable rectangle that may be cut from the specimen, and not on its total area.

3.2 Grade Designations — The grade designations and the corresponding areas of the usable rectangles, with minimum dimensions of the shorter side, are given in Table 1.

3.3 Sequence of Operations — All samples to be graded shall be trimmed prior to grading. The trimmed samples shall be graded according to the procedure given in 5.

4. TRIMMING

4.1 Full-trimmed Mica

4.1.1 *Usable Rectangle* — The total area of each piece of full-trimmed mica for sizes 40 (grade 4) and above shall not exceed 1·54 times the area of the largest usable rectangle or, in other words, the total area shall have a rectangular yield of at least 65 percent, with the tolerance that not more than 5 percent of blocks, by mass, may have a yield less than 65 percent. For full-trimmed mica up to size 20 (grade 5), the total area of each piece shall not exceed twice the area of the largest usable rectangle or, in other words, the total area shall have a rectangular yield of at least 50 percent with the tolerance that not more than 5 percent of blocks, by mass, may have a yield of less than 50 percent.

4.2 Partially-trimmed Mica

4.2.1 *Usable Rectangle* — The usable rectangle is the total area, within the rectangle of acceptable size and quality, which shall be not less than 40 percent of the total area based on the total inspection sample; that is, its cutting shall not involve a mass loss exceeding 60 percent of the mass of the total inspection samples.

4.3 'V' Cuts — No 'V' cut should remain in any piece of full-trimmed phlogopite mica blocks, thins or book-form splittings.

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*Definitions of mica terms.

TABLE 1 STANDARD GRADING FOR PHLOGOPITE MICA BLOCKS, THINS AND SPLITTINGS

(*Clauses* 3.2 *and* 5.1)

GRADE DESIGNATION		FORMS	AREA OF USABLE RECTANGLE		MINIMUM DIMENSIONS OF SHORTER SIDE OF USABLE RECTANGLE cm	THICKNESS OF 10 SPLITTINGS mm
Old (Grade or Number)	New (Size)		From (Incl) cm²	To (Excl) cm²		
(1)	(2)	(3)	(4)	(5)	(6)	(7)
OOEE special	630	Block and thin	645 and above		10·2	
OEE special	500	Block and thin	516	645	10·2	
EE special	400	Block and thin	387	516	10·2	
E special	315	Block and thin	310	387	10·2	
Special	250	Block and thin	232	310	8·9	
1	160	Block and thin	155	232	7·6	
2	100	Block and thin	97	155	5·1	
3	63	Block and thin	64	97	5·1	
4	40	Block and thin	39	64	3·8	
		Book form	39	64	3·8	0·15 to 0·25
		Loose with powder	39	64	3·8	0·15 to 0·25
5	20	Block and thin	19·4	39	2·5	
		Book form	19·4	39	2·5	0·15 to 0·25
		Loose with powder	19·4	39	2·5	0·15 to 0·25
		Loose packed	19·4	39	2·5	0·15 to 0·25
5½	16	Block and thin	14·5	19·4	2·0	
		Book form	14·5	19·4	2·0	0·18 to 0·25
		Loose packed	14·5	19·4	2·0	0·18 to 0·25
6	06	Block and thin	6·4	14·5	1·9	
		Loose packed	6·4	14·5	1·9	0·18 to 0·28
7	05	Block and thin	4·8	6·4	1·5	
		Loose packed	4·8	6·4	1·5	0·18 to 0·28

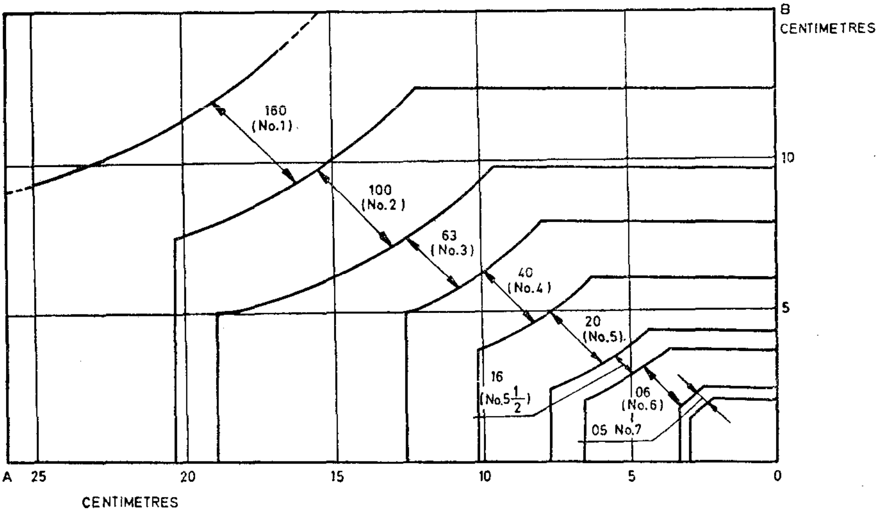
NOTE 1 — Book-form splittings should be sound, clean, and free from mineral spots, evenly split to specified thickness without thick edges and clean cut. Undusted loose-packed splittings may have edges slightly uneven.

NOTE 2 — Each grade of mica in a consignment should contain a natural distribution of sizes from the minimum to the maximum area specified for the grade.

NOTE 3 — During packing, care shall be taken to avoid inclusion of foreign matter among splittings.

5. GRADING PROCEDURE

5.1 Grading Chart — The range of the areas and the minimum dimensions of the shorter side of the usable rectangle for the various grades, given in Table 1, applies for the grading of all phlogopite mica blocks, thins and splittings. A grading chart based on Table 1 and as shown in Fig. 1, or templates prepared in accordance with it, are used for grading in accordance with the procedure described in **5.2**.



NOTE — For sizes larger than 100 (No. 2), the chart may be extended in a similar manner on the basis of Table 1.

FIG. 1 GRADING CHART FOR PHLOGOPITE MICA BLOCKS, THINS AND SPLITTINGS

5.2 Grading Procedure — The sample to be graded is laid upon the chart or the corresponding template so that it covers point O and has its maximum and minimum dimensions extending along and covering lines OA and OB respectively. It is shifted until the usable area completely covers the largest rectangle, determined by a diagonal extending from O to a point lying in one of the regions designated:

05 (No. 7)
06 (No. 6)
16 (No. 5½)
20 (No. 5)
40 (No. 4)
63 (No. 3)
100 (No. 2)
160 (No. 1)
....
....
500 (OEE special)
630 (OOEE special)

The number of the region in which the diagonal of the rectangle terminates, designates the size (grade or number) of the sample.

5.2.1 *Blocks* — All dimensions apply to the smaller surface measured from the foot of the bevel-trimmed edge.

5.2.2 *Cracks* — In no case shall a crack extend into the usable area.

6. THICKNESS OF SPLITTINGS

6.1 When measured in accordance with the method prescribed in IS:9045-1979* thickness of 10 splittings shall be within the value stipulated in col 7 of Table 1.

7. TOLERANCE

7.1 In any one batch or shipment, a tolerance of 5 percent by mass of the next lower grade is permitted. This tolerance is extended to 10 percent in the case of loose-pack splittings.

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*Thermal classification of phlogopite mica splittings.

INDIAN STANDARDS

ON

MICA

IS:	
1174-1957	Definitions of mica terms
1175-1957	Methods for grading and classification of muscovite mica blocks, thins and films
9043-1979	Method for grading (by size) of phlogopite mica blocks, thins and splittings
9044-1979	Method of measuring thickness of mica blocks, thins, films and splittings
9045-1979	Thermal classification of phlogopite mica splittings